

THE CLAIMS

Claims 1-12. (Canceled)

13. (Original) A method of measuring permeability and/or permeant sorption comprising the steps of:

providing a housing impervious to a permeant of interest and defining an inner sealable chamber having an inlet for introducing into the chamber an inert medium substantially free of the permeant of interest and an outlet for removing from the chamber the inert medium, and a sensor positioned within the sealed chamber and designed to provide signals, external of the chamber, indicative of permeant concentrations within the chamber;

placing packages to be tested in the chamber, flushing the chamber with the inert medium using the inlet and outlet to reduce permeant concentration in the chamber to a suitable low limit, and sealing the chamber subsequent to flushing;

monitoring the sensor to determine when the permeant concentration in the chamber increases to a suitable high limit; and

recycling the flushing, sealing and monitoring steps a plurality of times to achieve a constant time versus permeant concentration slope between the low limit and the high limit.

14. (Original) The method of claim 13 wherein the suitable low limit is below a low sensitivity of the sensor.

15. (Original) The method of claim 13 wherein the suitable high limit is such that a partial pressure of the permeant in chamber is below a partial pressure of the permeant in the packages to be tested.

16. (Original) The method of claim 13 wherein the recycling step includes a step of recording time intervals for sensor signals to reach the high limit from the low limit and calculating a rate of permeation into the chamber from the time intervals.

17. (Original) The method of claim 13 wherein the recycling step includes periodically acquiring concentration data from the sensor signals and computing a rate of permeation using linear regression on a point-by-point basis within each measurement cycle.

18. (Original) The method of claim 13 wherein the monitoring step includes a sub-step of controlling at least one of humidity, temperature, and concentration gradients within the chamber during the monitoring step.

19. (Original) The method of claim 13 further including a step of varying temperature within the chamber during the measuring procedure according to a predetermined program to determine gross package integrity.

20-23 (Canceled)

24. (Previously Presented) The method of claim 13 further including a step of controlling humidity in the

chamber by placing a salt solution in a container incorporating a hydrophobic microporous material.

25. (Previously Presented) The method of claim 24 wherein the salt solution contained in the bag includes saturated salt and an excess of undissolved salt.

26. (Previously Presented) The method of claim 24 wherein the bag has a size and an amount and type of salt solution and excess undissolved salt contained therein calculated to maintain a selected humidity level in the chamber.

27. (Previously Presented) The method of claim 13 further including a step of controlling humidity in the chamber by providing a piezoelectric water injection device coupled to the chamber, together with a humidity sensor coupled to the chamber and a controller for determining an amount of water to be injected depending on an observed humidity level and a desired control set point.

28. (Canceled)